13

Combined Oral Contraceptives

Rose was a virgin when she became engaged to Joseph. He was not. Before meeting Rose, Joseph had had intercourse with other women, including prostitutes, and he had been treated at least twice for sexually transmitted infections. However, when Rose and Joseph fell in love, he stopped seeing other women. Rose took oral contraceptives regularly until she and Joseph decided to start a family. When Rose became pregnant, she attended an antepartum clinic. On learning about Joseph's sexual history, the clinician recommended that Rose have an HIV test. The test was positive. Rose was overwhelmed with anger and despair. Rose's and Joseph's future lives have forever changed.

Millions of women in their reproductive years rely on the oral contraceptive (OC) pill, which is a highly effective contraceptive. The combined OC pill, one of the most extensively studied medications, is both safe and effective. In many countries, the pill is now available to women without a prescription. However, the pill provides no protection against sexually transmitted infections (STIs), including the human immunodeficiency virus (HIV). Anyone at risk of becoming infected from or infecting someone else with HIV should use condoms, even if she is already protected from pregnancy by the pill.

The terms “birth control pills,” "pills," “combined oral contraceptives,” “oral contraceptives,” and “OCs” refer to pills that contain both estrogen and progestin. These terms do *not* refer to progestin-only pills or mini-pills, which are discussed in the next chapter.

OVERCOMING BARRIERS

In some countries, clinical rules and practices create barriers to getting OCs for some women. However, the health risks of pregnancy are far greater than the risks of taking the pill. Thus, many of these clinical rules do not protect women against harmful pill side effects but instead expose them to increased risks of pregnancy. Decrease the barriers to OC use by adapting the following 10 steps to local situations:[2]

1. At each visit, give the woman enough pills to cover 7 to 20 cycles. If your program policy does not allow this, try to provide at least 3 or 4 cycles of pills. An OC user must *always* have ready access to pills.
2. Do not prescribe a "rest period" just because a woman has taken the pill for several years. Women can use pills as long as they are at risk for pregnancy. However, because pills can increase the risk of thrombophlebitis, stop pills for 2 weeks before major elective surgery. When the woman is able to walk again, she can resume taking the pills.
3. Do not enforce a minimum or maximum age for pills. A woman can use pills for as long as she is at risk for pregnancy. (See exceptions in the section on precautions.)
4. Help make it easy for the woman to remember to take pills. Tell her to begin the first pack of pills on the first day of menstrual bleeding, if possible. Otherwise, she can begin pills within 5 days of the start of her period.
5. Advise use of back-up contraception if a woman is using rifampin or if she is taking any anticonvulsant medication, other than valproic acid. Although there remains some debate on the issue, a

woman taking a broad spectrum antibiotic such as ampicillin or tetracycline should be offered a back-up contraceptive.

6. Prescribe pills for the postpartum period if a woman is *not* breastfeeding. She may start combined pills within 2 to 3 weeks of childbirth.
7. Make it easy to obtain pills. Many countries provide pills without a clinician's prescription. Trained providers (including community-based distribution workers) can initiate and resupply pills, and can make referrals to appropriate facilities if a user has complaints or troublesome symptoms. There are disadvantages to making pills available without prescription: the woman may not return for routine examinations, she may not visit her clinician about problems she is having with the pill, or she may not be a good candidate for pill use but may still choose to purchase and use the pills. On the other hand, the pill is a safe method, especially among the primary users—young, healthy women.
8. Keep checklists short (see Table 13:1 for an example). Select questions to identify which women can receive a limited supply of pills and which should be referred to a clinic.
9. Do not automatically stop the pill if the client is complaining of a single side effect. Consider other causes of that side effect.
10. Prescribe the pill even if the woman does not know how to read. Explain the instructions and have her repeat them to be sure she understands.

MECHANISM OF ACTION

Two estrogenic compounds are used in almost all current OCs: ethinyl estradiol (EE) and mestranol. EE is pharmacologically active, whereas mestranol must be converted into EE by the liver before it is pharmacologically active. Most of the OCs currently prescribed to new patients contain either 30 or 35 mcg of EE. Very few pills containing mestranol are now used. The estrogen and progestin in combined

OCs prevent pregnancy primarily by suppressing ovulation. Estrogenic effects include the following:[26]

- Ovulation is inhibited.
- Secretions within the uterus and the endometrium are altered.
- The corpus luteum degenerates.

There is scientific debate about the relative potency of the progestins in currently marketed OCs: norethindrone, norethindrone acetate, ethynodiol diacetate, norgestrel, levonorgestrel, desogestrel, norgestimate, and norethynodrel. Levonorgestrel and dextro-norgestrel are the two forms of norgestrel—Levonorgestrel is the active component, and it is twice as potent as dextro-norgestrel. Progestational effects include the following:[26]

- Ovulation is inhibited.
- Cervical mucus thickens.
- Sperm cannot penetrate the ovum as easily.
- Capacitation of sperm may be inhibited.
- Ovum transport may be slowed or fallopian tube secretions altered.
- Implantation is hampered.[2]

EFFECTIVENESS

If combined pills are used *perfectly,* only about 1 in 1,000 women will become pregnant within the first year. However, the typical user does not use the pills perfectly. Among users of OCs in the United States, about 5% become pregnant during the first year of typical use. Pill effectiveness can be improved if women reduce the pill-free interval from 7 days to 4 or 5 days.

Many women get pregnant when they discontinue pills, do not begin another method of contraception, and then have unprotected intercourse. Only 50% to 75% of women continue to use pills for 1 year. Because of these high discontinuation rates, it is important to

provide every pill user with a back-up method of contraception, such as condoms. Instruct women on how to use the back-up method and encourage them to practice using it.

Because most women who discontinue pills have not developed a complication or major side effect, you should try to reduce the barriers to successful pill use (see previous section). Explain how pills are to be started and used, and make certain the client understands. It is essential that the new pill user know when to take the first pill, what to do if she misses a pill, and where to return for supplies. She should be informed that spotting and some nausea are most likely to occur in the first cycle or so and that they tend to decrease over time.

ADVANTAGES AND INDICATIONS

ADVANTAGES

1. **Highly effective.** When taken consistently and correctly, pills are a very effective contraceptive that give women control over their own fertility.
2. **Very safe.** Low-dose combined pills (pills with 20 to 35 mcg of estrogen) are very safe for almost all women. It is safer to use pills than to become pregnant and deliver a baby. An African woman's risk of dying from pregnancy ranges from 100 to 1,500 maternal deaths for every 100,000 live births.[38] The risk of death from OCs is close to zero if heavy smokers over 35 years of age do not take pills.[15] Pills are one of the most researched medications ever prescribed.
3. **A contraceptive option throughout the reproductive years.** Most women can safely use pills throughout their reproductive years. A rest period every few years is definitely not recommended for women who wish to continue using pills.
4. **Excellent reversibility.** Pills are an excellent option for women who want to become pregnant in the future. Pills protect future fertility, as they prevent ovarian cysts, many forms of pelvic inflammatory disease (PID), ectopic pregnancy, progression of endometriosis, and growth of uterine fibroids.

5. **Beneficial menstrual cycle effects.**
    - Pills decrease menstrual cramps and pain. Some women consider these to be the most desirable effect of OCs.
    - Pills prevent ovulation and, therefore, ovulation pain (mittelschmerz) in most women.
    - Pills decrease the number of days of menstrual bleeding.
    - Pills decrease menstrual flow by 60% or more in women with a normal uterus.[26] Therefore, pill users are less likely to develop iron-deficiency anemia.
    - Pills reduce the incidence of functional ovarian cysts by 80% to 90%.[14,22] Very low-dose pills (pills with 20 to 30 mcg of estrogen and lowest dose progestin pills) provide less protection against functional ovarian cysts.[14]
    - Pills can reduce premenstrual symptoms such as anxiety, depression, headaches, and fluid retention for some women.[14] For other women, however, these symptoms may become worse.
6. **Prevention of ovarian and endometrial cancer**. By age 55, a woman is less likely to be diagnosed with cancer if she used pills than if she did not. Women who have used combined OCs for 4 years or less are 30% less likely to develop ovarian cancer than women who have never used the pill. Women who used pills for 5 to 11 years are 60% less likely; and if they used them for 12 or more years, 80% less likely. This protection lasts for at least 10 years after pills have been discontinued. Women who start using OCs at an early age and continue for a long time may be more protected than women who start using pills at an older age.[15] Because ovarian epithelial cancer is more likely to occur in certain families,[19] a strong family history for this type of ovarian cancer might be considered an indication for using OCs. Pill users have about half the risk of nonusers of developing endometrial cancer.[6,13,15] The protective effect lasts for at least 10 years after pills have been discontinued.

7. **Decreased risk for benign breast cysts and fibroadenomas.** Pill users are less likely to develop benign breast tumors than are women who do not use the pill.[22]
8. **Prevention of ectopic pregnancy.** By stopping ovulation, pills prevent all conceptions, including those that implant outside the uterus (ectopic pregnancies). Ectopic pregnancy is an important cause of maternal mortality throughout the world.
9. **Prevention of pelvic infection**. The combined oral contraceptive pill protects against PID, a major cause of female infertility.[15,25] Pill users are less likely to develop the more severe forms of PID than are users of other contraceptives. However, pills may not protect women against all forms of PID, especially the more chronic, subclinical type caused by *Chlamydia trachomatis*. Indeed, evidence suggests that pills may enhance cervical infections with *C. trachomatis*, possibly offsetting the protective effects of OCs against PID.[31]
10. **Reduction of acne and hirsutism.** Combined OCs lower serum testosterone levels and tend to reduce acne and hirsutism.[14,26]
11. **Increased enjoyment of sexual intercourse**. Probably because the fear of pregnancy is diminished, many couples who rely on the pill enjoy sexual intimacy more. However, in some women, the pill has just the opposite effect.
12. **Improvement of estrogen deficiency symptoms.** Pills suppress follicle stimulating hormone and luteinizing hormone and prevent hot flashes in women in their 40s. Pills have been shown to have similar beneficial effects in preventing osteoporosis.
13. **Management of endometriosis.** Pills have been used in preventing the progression of endometriosis.[14,26,27]
14. **Easily obtainable.** In many countries, pills are available at a low cost and without a prescription. The price and availability of pills vary greatly from country to country.
15. **Prevention of hospitalization.** The use of combined OCs prevents more hospitalizations than it causes (see Figure 13:1). In the United States, the protective effects of pills prevent an estimated 1,614 hospitalizations per 100,000 current pill users.[14]

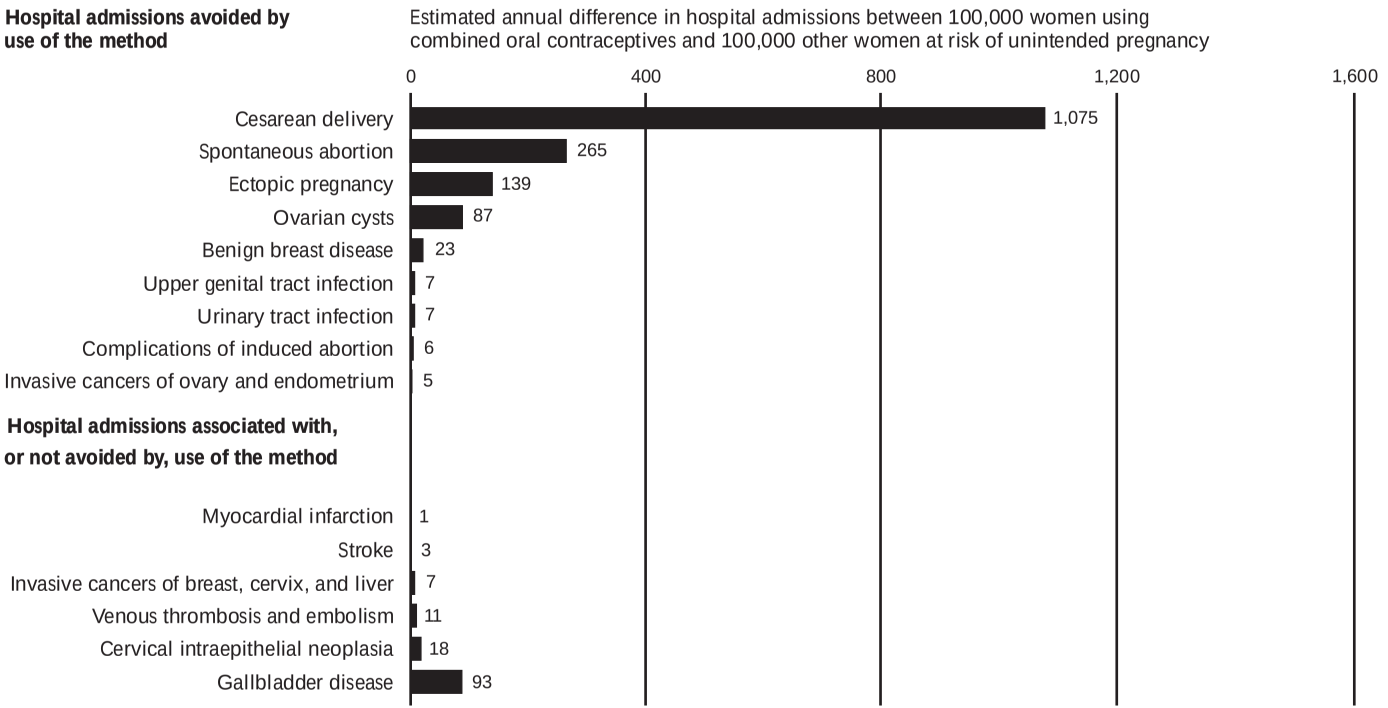
16. **Use as emergency contraception.** Some types of combined pills given within 72 hours of unprotected intercourse reduce the risk of pregnancy by 75%.[29] Emergency contraception is used *after* intercourse but *before* pregnancy occurs. Emergency contraceptive pills (ECPs) have a higher than usual dose of oral contraceptives. When taken within 72 hours after unprotected intercourse, ECPs can interrupt fertilization and implantation. One dose is taken soon after intercourse, and a second dose is taken 12 hours later. (See Table 13:1.) Emergency contraception should not be a routine form of protection for women.

    About half the women who use ECPs report nausea; about 20% vomit. Nausea and vomiting can be prevented by antinausea medications such as dimenhydrinate and cyclizine hydrochloride.

Table 13:1 Oral contraceptive pills available in Africa that can be used as emergency contraceptive pills

Brand Name	First dose within 72 hours of intercourse	Second dose 12 hours after first dose
Anteovin	2 tablets	2 tablets
Eugynon	2 tablets	2 tablets
Eugynon-30	4 tablets	4 tablets
Eugynon-50	2 tablets	2 tablets
Lo-Femenal	4 tablets	4 tablets
Lo-Rondal	4 tablets	4 tablets
Logynon	4 tablets	4 tablets
Microgynon	4 tablets	4 tablets
Microgynon-30	4 tablets	4 tablets
Microvlar	4 tablets	4 tablets
Minidril	4 tablets	4 tablets
Neogynon	2 tablets	2 tablets
Nordette	4 tablets	4 tablets
Nordiol	2 tablets	2 tablets
Normovlar	2 tablets	2 tablets
Ovidon	2 tablets	2 tablets
Ovral	2 tablets	2 tablets
Primovlar	2 tablets	2 tablets
Rigevidon	4 tablets	4 tablets
Stediril	2 tablets	2 tablets
Trinordiol	4 tablets	4 tablets
Triovlar	4 tablets	4 tablets
Triquilar	4 tablets	4 tablets

Figure 13:1 Use of combined oral contraceptives prevents many more hospital admissions than it adds



Source: Harlap et al. (1991) with permission of the Alan Guttmacher Institute.

INDICATIONS

Pills are a particularly attractive contraceptive option for women who are motivated to use a method that requires a daily routine and who have some of the following characteristics:

- Nulliparous
- Young, sexually active
- Not at risk for STIs, including HIV
- Desiring spontaneous intercourse
- Nonlactating, postpartum
- Desiring a reversible method
- Bothered by heavy or painful periods
- Acned, hirsute, or having oily skin
- Having a strong family history of ovarian cancer

DISADVANTAGES AND CAUTIONS

Pills provide no known protection against HIV infection. Women who may be at risk for HIV infection should use condoms alone or condoms with the pill. (Abstinence and long-term mutually faithful relationships are the safest approaches to avoiding HIV infection transmitted by intercourse.)

1. Challenge of daily compliance. Some women may find it complicated to take pills every day. If a woman runs out of her supply of pills, her contraceptive protection will stop.
2. Expense. Pills are not always available or affordable.
3. Unwanted menstrual cycle changes. Pills may be associated with menstrual changes such as missed periods, very scanty bleeding, spotting, and breakthrough bleeding. These changes usually resolve in 3 to 4 cycles. Some women find these menstrual cycle changes distressing. (Combined OCs cause fewer bothersome menstrual cycle changes than do progestin-only pills, Norplant implants, or progestin-elaborating intrauterine devices [IUDs].)
4. Nausea or vomiting. Nausea may occur in the first cycle or so of pill use or, less commonly, in subsequent cycles.

5. Headaches. Headaches may start in a woman with no history of headaches or they may become worse than they were before pills were started. On rare occasions, changes in vision accompany the headaches. If a woman loses her vision while using pills, she should discontinue their use.
6. Depression. In some women, pills may stimulate depression (sometimes severe) and other mood changes.
7. Decreased libido. Some women on pills experience a decreased interest in sex or a decreased ability to have orgasms. Decreased libido may be due to decreased levels of free testosterone due to OC use.
8. Cervical ectopia and chlamydia infection. Chlamydial cervicitis may be more common in women taking pills.[26,31] Pills can cause cervical ectopia, a condition in which the delicate mucus-secreting columnar cells that normally line the cervical canal cover part of the external surface near the opening of the cervical canal. Chlamydia thrives inside these columnar cells, making the cervix more vulnerable to *C. trachomatis* infection. However, there is no evidence to suggest this increased risk for chlamydial infection places women at greater risk for PID.
9. Thrombophlebitis, pulmonary emboli, and other cardiovascular diseases. Circulatory diseases are the most serious complications attributable to oral contraceptive use.[14,27] Fortunately, serious complications are extremely rare with low-dose combined OCs. Clinically significant hypertension has been associated with both estrogen and progestin in pills. However, it is not certain whether clinically significant hypertension is caused by OCs. If a woman's diastolic blood pressure rises above 90 mmHg on several visits, discontinue her pills or change to a lower dose. It may be appropriate to switch her to a progestin-only pill. Hypercoagulability and thrombosis are associated with exogenous estrogens. Atherogenesis is prevented by estrogens, which tend to have desirable effects on lipids, increasing high-density lipoproteins (HDLs) and decreasing low-density lipoproteins (LDLs). Androgens and some progestins have just the opposite effect on HDLs and LDLs. Recent changes in OC formulations have lowered the progestins in OCs and have led to new formulations capable of

producing a more favorable lipoprotein pattern than a woman had before using pills. The "new progestins," which contain desogestrel, gestadene, or norgestimate, lead to a favorable HDL: LDL ratio.[11]

A woman's risk for circulatory disease is most influenced by characteristics unrelated to pill use—factors such as smoking, weight, and cholesterol levels. Cardiovascular disease is most likely to occur in women who:

- *Smoke*
- *Are overweight*
- *Get little physical exercise*
- *Are over 50 years of age*
- *Are hypertensive, diabetic, or have a history of heart or vascular disease*
- *Have a family history of diabetes or heart attack in a relative under the age of 50*

10. Carbohydrate metabolism. Carbohydrate metabolism is not significantly affected by the current low-dose pills. Low-dose combined pills may be provided to some women with a history of gestational diabetes, a family history of diabetes, and, in some instances, insulin-dependent diabetes.

11. Gallbladder disease. Recent studies conclude that OCs are not an important risk factor for the development of gallstones or gallbladder cancer. However, although pills do not cause gallstones, they may speed the development of gallbladder disease in women who already are susceptible, such that problems become evident earlier.[14,26]

12. Hepatocellular adenomas. Benign liver tumors have been associated with the use of combined OCs. However, with the current low dose pills, the risk of liver tumors is much lower than with higher dose pills, and pill users may bear no greater risk of these tumors than do nonusers.

13. Breast cancer and other types of cancer. By age 55, women who used pills are no more likely to be diagnosed with *breast cancer*

than are women who did not use pills. However, there may be a group of young women who have used pills that are at greater risk of having breast cancer diagnosed before the age of 35.[15,33] Seven of 13 epidemiologic studies found no significantly increased risk of cervical neoplasia in OC users, and five found a statistically increased risk.[24,30] A link between OCs and benign hepatocellular adenomas was established several years ago.[23] An association between OCs and hepatocellular carcinoma is less certain.[10,12,17,28] Pills probably have no effect on a woman's likelihood of developing a malignant melanoma; kidney, colon, or gallbladder cancer; or pituitary tumors.[15,17,20]

14. Decreased milk supply. Combined OCs are not the contraceptive of choice for breastfeeding mothers. The estrogen in combined pills, even in low-dose pills, reduces milk supply.[32] Use of combined pills may slightly alter the composition of breast milk; most studies report declines in mineral content. Nevertheless, the use of combined OCs while nursing does not harm infants.[32]
15. Other side effects. Women using pills may experience a variety of other side effects including breast fullness or tenderness, increased facial pigmentation, acne, weight gain, and hair loss.

PROVIDING COMBINED PILLS

Each country needs to develop its own protocols for providing and following up women who receive the pills. Suggestions that may help establish protocols are listed below. For most women, the advantages of combined pills clearly outweigh the risks and disadvantages. However, you should avoid giving pills to women who may have conditions that increase risk. To further reduce any risks and disadvantages of pill use, do not provide pills with more than 35 mcg of estrogen to these women and prescribe pills with low dosages of progestin.

Because misinformation about OCs is widespread, clearly explain the noncontraceptive benefits of pills, how to use them, and what to do if problems with the pill should occur. Encourage all smokers to stop smoking.

INITIAL VISIT

Weight, blood pressure, a Papanicolaou (Pap) smear, and pelvic examination are desirable screening tests for all women. For most women, however, they are *not necessary to start taking pills.* At the minimum, measure blood pressure and use a checklist to evaluate clients annually.

FOLLOW-UP VISITS

Each clinic must decide what medical history should be taken each time a woman returns for a pill refill. Brief, self-administered questions can help the pill user decide whether she should stop using pills if she develops medical problems or experiences a danger sign. (See Table 13:1 on The Pill Checklist.)

Some programs re-evaluate women after their first 3 to 6 months of pill use. Although this is not medically necessary, evaluation is an opportunity for the woman to ask questions about the pill. If a woman has used the pill for 3 to 6 months, is having no problems, and wants to continue the pill continuously, seven packets (a 6-month supply) may be provided. After a woman has used pills for 1 year, a full year's supply of pills may be provided to discourage pill discontinuation.

Table 13:2 Checklist for the provision of combined oral contraceptive pills

Do you have symptoms of pregnancy NOW?	____	YES	____	NO
Have you ever been told NOT to take pills?	____	YES	____	NO
Have you ever had a blood clot, a heart attack, or a stroke?	____	YES	____	NO
Have you had severe headaches or severe chest pain since starting birth control pills?	____	YES	____	NO
Have you developed blurred vision or loss of vision since taking the pill?	____	YES	____	NO

If the answer to any of these questions is "yes," discuss them with your clinician.

Choosing a Combined Oral Contraceptive: Which Combined Pill to Prescribe

How does a clinician decide which of the many pills to prescribe for an individual woman? A flow sheet (see Figure 13:2) can help. Any of the sub-50 mcg pills may be used by most women.

OCs provide no protection against STIs, including HIV infection. Counsel women (and men) to use condoms until they become committed to a long-term, mutually faithful relationship with someone they know is not infected. Consider providing both an OC pill and condoms.

Indications and precautions (Step #1)

Some women should not take an OC with an estrogenic component. Avoid prescribing pills to women who have conditions that place them at greater risk of complications. (See Table 13:3 and Figure 13: 2.) On the other hand, today's OCs are suitable for several categories of women who have been denied prescriptions in the past:

Women over 35 years of age

Today's pills are available in much lower doses and appear to be a safe contraceptive choice for women over 35 who do not smoke or have hypertension, diabetes, or hypercholesteremia.[14,21,26] Women may take the pill until age 50, as long as they have no complications or risk factors. Screening tests such as mammography and cholesterol determinations that might reveal complications, however, are unavailable for most women in the world. Pills should not be withheld from women when these tests are not available, unless a woman has other reasons to avoid pill use.

Figure 13:2 Choosing a combined oral contraceptive

Step 1	Step 2
Can this individual be prescribed a pill with estrogen? →	YES, she can use an estrogen.

Definitely refrain from prescribing a pill with estrogen to women with a history of a cerebrovascular accident; ischemic heart disease; uncontrolled hypertension; insulin dependent diabetes with vascular disease; classic migraine with neurologic impairment which has increased with estrogen; breast cancer; estrogen dependent neoplasia; active hepatic disease with impaired liver function at the present time; benign or malignant liver tumor; or deep vein thrombosis. Some clinicians would make an exception and provide combined OCs to women following postpartum pelvic vein thrombosis or women whose thrombophlebitis was due to trauma or intravenous therapy. Also, in most instances, refrain from providing combined pills to women over 35 who smoke. Breast feeding women, in general, should avoid estrogen. →	NO, it would be best if she did not use an estrogen. Therefore, you can consider:
	• Progestin-only pills, such as:
	  • Micronor (0.35 mg norethindrone daily)
	  • NOR QD (0.35 mg norethindrone daily)
	  • Ovrette (0.075 mg nogestrel daily)
	  • Norplant (5-year levonorgestrel implants)
	  • Depo-Provera (150 mg medroxyprogestrone acetate injection every 3 months)
	• Intrauterine device
	  • Copper T 380-A
	  • Progestasert System
	• Condoms (male or female)
	• Diaphragm, Cervical Cap
	• Foam, VCF Film, Suppository
	• Sponge

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Graphic Design: Anne Atkinson and Beth Coffey

Figure 13:2 Choosing a combined oral contraceptive (Continued)

Step 3

Therefore, you may choose between any of the following OCs based on:

- Number of micrograms of ethinyl estradiol
- Availability of pill
- Ease of remaining on schedule because of pills
- Price of pills to clinic
- Price of pills to client
- Prior experience of this individual woman or the clinician caring for this woman with a special pill

Pills are listed from the lowest to the highest number of micrograms of ethinyl estradiol:

Combined Pill	Estrogen (mcg)	Availability/Cost In Your Clinic	Company
Loestrin 1/20	20	_____	Parke-Davis
Loestrin 1.5/30	30	_____	Parke-Davis
Desogen	30	_____	Organon
Lo-Ovral	30	_____	Wyeth
Nordette	30	_____	Wyeth
Levlen	30	_____	Berlex
Ortho-Cept	30	_____	Ortho
Tri-Levlen	30/40/30	_____	Berlex
Triphasil	30/40/30	_____	Wyeth
Ovcon 35	35	_____	Mead Johnson
Demulen 1/35	35	_____	Searle
Ortho-Cyclen	35	_____	Ortho
Ortho Tri-Cyclen	35	_____	Ortho
Ortho Novum 777	35	_____	Ortho
Ortho-Novum 1/35	35	_____	Ortho
Modicon	35	_____	Ortho
Brevicon	35	_____	Syntex
Norinyl 1/35	35	_____	Syntex
Tri-Norinyl	35	_____	Syntex
Norcept-E 1/35**	35	_____	Syntex
Nelova 0.5/35**	35	_____	GynoPharma
Nelova 1/35**	35	_____	Warner-Chilcott
NEE 0.5/35	35	_____	Lexis
NEE 1/35	35	_____	Lexis
Genora 0.5/35**	35	_____	Rugby
Genora 1/35	35	_____	Rugby
Jenest	35	_____	Organon
NEE 10/11	35	_____	Lexes
Norethin 1/35E	35	_____	Schiaparelli-Searle

Step 4

Other clinical considerations that might help in OC choice:

A. To minimize the potential risk for *thrombosis* due to estrogen in a woman 40–50 years of age or a woman at increased risk for thrombosis due to another cause (e.g., diabetic or heavy smoker), prescribe:
   - Loestrin 1/20

B. To minimize *nausea*, *breast tenderness*, *vascular headaches*, and estrogen-mediated side effects, prescribe:
   - Loestrin 1/20

   Or a 30 mcg pill, such as:
   - Desogen
   - Levlen
   - Loestrin 1.5–30
   - Lo-Ovral
   - Nordette
   - Ortho-Cept

C. To minimize *spotting and/or breakthrough bleeding*, prescribe:
   - Lo-Ovral, Nordette, or Levlen
   - A new progestin pill: Desogen, Ortho-Cept, Ortho-Cyclen, or Ortho Tri-Cyclen

D. To minimize androgen effects such as *acne*, *hirsutism*, *oily skin*, *sebaceous cysts*, *pilonidal cysts, or weight gain*, prescribe:
   - Desogen, Ortho-Cept
   - Ortho Tri-Cyclen
   - Ortho Cyclen
   - Ovcon-35, Brevicon, or Modicon (of norethindrone pills)
   - Demulen-35 (of ethnodiol diacetate pills)

E. To produce the most *favorable lipid profile*, prescribe:
   - Ortho Cyclen or Ortho Tri-Cyclen
   - Desogen or Ortho-Cept
   - Ovcon-35, Brevicon, or Modicon (of norethindrone pills)

***Contraceptive Technology* 1994–1996**

Table 13:3 Precautions in the provision of combined pills

Low-Dose Oral Contraceptives (COCs) Containing <50µg of Ethinyl Oestradiol		
Condition	**Category**	**Rationale/Comments**
Pregnancy	4	As no method is indicated, any health risk is considered unacceptable. However, there is no known harm to mother or fetus if OCs are used during pregnancy.
Breastfeeding		
<6 wks postpartum	4	Theoretical concern regarding association of OC use and risk of thrombosis. Concern that immature neonate may be at risk of exposure to steroid hormones.
6 wks to 6 mths postpartum (primarily breast-feeding)	3	Use of OCs during breast-feeding diminishes the quantity of breast milk and may adversely affect the health of the infant.
>6 mths postpartum	2	
Age		
Menarche—age 40	1	Theoretical concern about the use of OCs among young adolescents has not been substantiated by scientific evidence.
>Age 40	2	The health risk:benefit ratio may change for women with certain risk factors for cardiovascular disease, particularly among women above age 40.
Smoking		
Age <35	2	Age modifies the risk associated with smoking.
Age >35		
light	3	The risk:benefit ratio changes particularly among women who are heavy smokers.
heavy (>20 cigarettes/day)	4	
Essential hypertension		
140-159/90-99	2/3	OC causes only small changes in blood pressure among non-hypertensive women. Primary concern is risk of underlying vascular disease and additional risk of thromboembolism.
160-179/100-109	3/4	
180+/110+	4	
Moderate and severe hypertension	3	
Vascular disease	3/4	The health risk:benefit ratio depends on the severity of the condition.

1 = used in any circumstances
2 = generally used
3 = usually not used unless other more appropriate methods are not available or acceptable
4 = not to be used

Table 13:3 Precautions in the provision of combined pills (Cont.)

Low-Dose Oral Contraceptives (COCs) Containing <50µg of Ethinyl Oestradiol		
Condition	**Category**	**Rationale/Comments**
History of pre-eclampsia	1	Absence of underlying vascular disease suggests no need for restriction of OC use.
Diabetes		
History of gestational disease	1	Not a concern; no need for restriction of OC use.
Non-vascular disease:		Although carbohydrate tolerance may change with OC use, major concern is vascular disease and additional risk of thrombosis.
non-insulin dependent	2	
insulin dependent	2	
Nephropathy/retinopathy	3/4	
Other vascular disease or diabetes of >20 years' duration	3/4	
Venous thromboembolism (VTE)		
Current and history of VTE	4	
Major surgery		The increased risk of venous thromboembolism associated with OC should have little effect on healthy women, but may have substantial impact on women otherwise at risk for thrombo-embolism.
with prolonged immobilization	4	
without prolonged immobilization	2	
Minor surgery without immobilization	1	
Varicose veins	1	
Superficial thrombophlebitis	2	
Current and history of ischemic heart disease	4	Among women with underlying vascular disease or demonstrated predisposition to thrombosis, the increased risk of thrombosis with OC should be avoided.

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Table 13:3 Precautions in the provision of combined pills (Cont.)

Low-Dose Oral Contraceptives (COCs) Containing <50µg of Ethinyl Oestradiol		
Condition	**Category**	**Rationale/Comments**
Stroke		
Current (in hospital)	4	Among women with underlying vascular disease or demonstrated predisposition to thrombosis, the increased risk of thrombosis with OC should be avoided.
History	4	
Severe hyperlipidemia	3	Although these conditions are risk factors for vascular disease, routine screening is not needed and is inappropriate because of the rarity of the conditions and cost of screening.
Valvular heart disease		
Uncomplicated	2	Use of OC in complicated valvular heart disease is likely to increase the risk of embolic phenomenon.
Complicated (pulmonary hypertension, risk of arterial fibrillation, history of SBE)	4	
On anticoagulant drugs	3/4	Among women with underlying thromboembolic condition or predisposition to thrombosis, any increased risk of thrombosis with OC should be avoided.
Headaches		
Mild	1	Not a concern, no need for restriction of OC use.
Severe		
recurrent, including migraine, *without* focal neurologic symptons	2	
recurrent, including migraine, *with* focal neurologic symptoms	4	Focal neurologic symptoms may increase the risk of stroke.
Irregular menstrual patterns (cyclic pattern maintained)		
Without heavy bleeding	1	Changes in menstrual bleeding patterns are common among healthy women.
With heavy bleeding	1	

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Table 13:3 Precautions in the provision of combined pills (Cont.)

Low-Dose Oral Contraceptives (COCs) Containing <50µg of Ethinyl Oestradiol		
Condition	**Category**	**Rationale/Comments**
Unexplained vaginal bleeding (cyclic pattern disrupted)		
Before/during evaluation	3	Evaluation of the underlying pathological condition (such as pregnancy, pelvic malignancy) is necessary.
After evaluation	**	
Breast disease		
Undiagnosed mass	2	
Benign breast disease	1	No concern related to COC use for women with benign breast disease or family history of breast disease.
Family history of cancer	1	
Cancer		Breast cancer is a hormonally sensitive tumor. The risk for progress of the condition may be increased among women with current or past history of breast cancer.
current	4	
past but no evidence of current disease for 5 years	3	
Cervical intraepithelial neoplasia (CIN)	2	Little concern that OC enhances progression of CIN to invasive disease.
Cervical cancer (awaiting treatment)	2	Theoretical concern that OC use may affect prognosis of the existing disease.
Cervical ectropion/erosion	1	Not a risk factor, no need for restriction of OC use.
Endometrial, ovarian cancer	1	OC use reduces the risk of developing endometrial and ovarian cancer. (In general, treatment of these conditions renders a woman sterile. While awaiting treatment, women may use OC.)

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Table 13:3 Precautions in the provision of combined pills (Cont.)

Low-Dose Oral Contraceptives (COCs) Containing <50µg of Ethinyl Oestradiol		
Condition	**Category**	**Rationale/Comments**
Pelvic inflammatory disease (PID)		OCs provide protection against PID.
Past (assuming no current risk factors of STIs)		
with subsequent pregnancy after past PID	1	
without subsequent pregnancy; however, pregnancy is desired	1	
without subsequent pregnancy; and pregnancy is not desired	1	
Within the last 3 months	1	
Purulent cervicitis	1	
Trachomatis or *N. Gonorrhoea*	1	
Vaginitis without purulent cervicitis	1	
Increased risk of STIs (e.g. multiple partners or partner who has multiple partners)	1	
STIs: current or within 3 months	1	Not a concern, no need for restriction of OC use.
HIV/AIDS		
HIV+	1	No confirmation of an association of OC use with these conditions.
High risk of HIV infection	1	
AIDS	1	

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Table 13:3 Precautions in the provision of combined pills (Cont.)

Low-Dose Oral Contraceptives (COCs) Containing <50µg of Ethinyl Oestradiol		
Condition	**Category**	**Rationale/Comments**
Biliary tract disease		
Symptomatic		
surgically treated	2	Estrogen component of OC accelerates the development of symptoms of gall bladder disease.
medically treated	3	
current	3	
Asymptomatic	2	
History of cholestasis		
Pregnancy-related	2	History of pregnancy related cholestasis may predict an increased risk of developing OC associated cholestasis.
Past OC-related	3	
Viral hepatitis		
Active		Because OC is metabolized by the liver, its use may adversely affect women whose liver function is already compromised.
symptomatic	4	
asymptomatic	3	
Carrier	1	In women with symptomatic viral hepatitis, OC should be withheld until liver function returns to normal or until 3 months after the woman becomes asymptomatic.
Cirrhosis	3/4	Because OC is metabolized by the liver its use may adversely affect women whose liver function is already compromised.
Liver neoplasia		
Benign (adenoma)	4	OC is metabolized by the liver, and use may affect prognosis of the existing disease.
Malignant (hepatoma)	4	OC use substantially increases the risk of hepatoma.
Schistosomal fibrosis	1	OC use is not known to predispose to schistosomal fibrosis.
Uterine fibroids	1	OCs provide protection against uterine fibroids.

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Table 13:3 Precautions in the provision of combined pills (Cont.)

Low-Dose Oral Contraceptives (COCs) Containing <50µg of Ethinyl Oestradiol		
Condition	**Category**	**Rationale/Comments**
Past ectopic pregnancy		
Subsequent pregnancy desired	1	OCs provide protection against ectopic pregnancy.
Subsequent pregnancy not desired	1	
Obesity	1	Not a concern, no need for restriction of OC use.
Thyroid		
Simple goiter	1	Not a concern, no need for restriction of OC use.
Hyperthyroid	1	
Hypothyroid	1	
Trophoblast disease (current and recent history)	1	Not a concern, no need for restriction of OC use.
Sickle cell disease	2	Not a concern, no need for restriction of OC use.
Iron deficiency anaemia	1	OC use may decrease blood loss. No need for restrictions of OC use.
Epilepsy	1	The condition per se is not a concern. No need for restriction of OC use. Certain antiepileptic drugs lower OC efficacy. If a woman is taking treatment, refer to section on drug interactions.
Schistosomiasis	1	
Malaria	1	Not a concern, no need for restriction of OC use.

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Table 13:3 Precautions in the provision of combined pills (Cont.)

Low-Dose Oral Contraceptives (COCs) Containing <50µg of Ethinyl Oestradiol		
Condition	**Category**	**Rationale/Comments**
Drug interactions		
Commonly used drugs which affect liver enzymes:		Commonly used liver enzyme inducers are likely to reduce the efficacy of OCs.
antibiotics (rifampicin and griseofulvin)	3	
anticonvulsants (phenytoin, carbamezapine, barbiturates, primadone)	3	Use of other contraceptives should be encouraged for women who are on long-term use of any of these drugs.
Other antibiotics	1	
Parity		
Nulliparous	1	Not a concern. No need for restriction of OC use.
Parous	1	
Rapid return to fertility desired	1	Not a concern. No need for restriction of OC use.
Severe dysmenorrhoea	1	OC use may decrease or alleviate symptoms of dysmenorrhoea. No need for restriction of OC use.

Source: WHO (1996)

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Smokers

It is not required or wise to withhold pills from all women who are heavy smokers but have no other reasons to avoid pill use. Encourage smokers to stop smoking. Explain that cigarette smoking interacts with OCs to increase a woman's risk of myocardial infarction, stroke, and other clotting injuries. Teach the warning signs when using pills.

Young women

An adolescent woman can start taking the pill when she becomes sexually active or considers becoming sexually active. The medical and social risks of pregnancy at a young age exceed the risks of taking OCs, even if menstrual periods have not begun. No evidence suggests that the estrogen in current low-dose OCs can limit height due to premature closure of the epiphyses, even in adolescents who have not begun menstruating. In menstruating adolescents, epiphyseal closure is well under way. Tell the young woman who has had very irregular periods or very late onset of menses that OCs will make her menses more regular, but that when she stops her OCs in the future to become pregnant, her periods may become irregular again and that becoming pregnant could take a number of months.

Because adolescent pill users may stop using pills because of minor side effects such as nausea or spotting, take all minor side effects in adolescents seriously. If nausea or vomiting is a problem, prescribe a 20 mcg pill, the lowest estrogen pill available, or a progestin-only pill. If acne is a particular concern, one of the new progestin pills may be the best choice, but all pills are likely to have a beneficial effect on acne.

Postpartum/lactating women

Because pills may decrease the amount of milk a breastfeeding woman produces, most women should begin pill use after the baby has been weaned. The progestin-only pill is probably a better choice than the combined pill for these women. Contraceptive choices for breastfeeding women are discussed extensively in Chapter 12 on Lactation and Postpartum Contraception and in Chapter 14 on Norplant, Depo-Provera, and Progestin-Only Pills.

Alternative options (Step #2)

If a woman should not take estrogen, consider all alternative contraception options, including progestin-only methods and IUDs.

Selection (Step #3)

Select any sub-50 mcg combined pill based on its availability, cost, or on the prior experience of the client or clinician. No single OC is clearly better than all the rest. Today's combined OCs contain far less estrogen or progestin than pills of a generation ago. Most of the noncontraceptive benefits of combined OCs appear to occur in women using low-dose pills.

Price. It is appropriate to consider price in choosing a pill. Cost influences decisions about which pill to provide, along with clients in deciding whether they can use the pill successfully. Find out where clients can obtain pills most inexpensively.

Dose. Start with the lowest dose pill available:

- A 20 mcg (unavailable in most clinics in Africa) or a 30 mcg pill
- A pill with just 0.4 or 0.5 mg of norethindrone rather than 1 mg of norethindrone found in 1+35 pills
- The pills with the lowest amount of levonorgestrel available to your clinic

Clinical considerations (Step #4)

The estrogenic, progestational, and androgenic effects of OCs affect a number of organs and tissues throughout the body (skin, uterus, ovaries, brain, breasts, arteries, veins, etc.). A pill may stimulate a specific organ in a woman quite differently than the natural (endogenous) hormones the woman produced before she began using OCs. A specific pill may suppress hormone production or affect one organ system or tissue differently in two different women. But, there are ways to minimize a woman's risk of specific side effects or metabolic changes brought about by pills:

Thrombosis. The most serious complication to avoid is thrombophlebitis. A client at an increased risk of thrombophlebitis should use the pill with the least estrogenic potency, such as a 20 or 30 mcg pill.

Estrogenic side effects. Most women using pills with less than 50 mcg of EE do not experience one of the estrogen-mediated side effects, which include the following:[9,14]

- Nausea
- Increased breast size
- Leukorrhea (whitish vaginal discharge)
- Cervical ectopy (growth of columnar cells onto the surface of the cervix)
- Thromboembolic complications (blood clots)
- Hepatocellular adenomas (benign liver tumors)
- Growth of leiomyomata (fibroids)
- Telangiectasia (superficial vessels on the skin)

Estrogen- and progestogen-associated side effects include the following:

- Breast tenderness
- Headaches
- Hypertension
- Myocardial infarction

Spotting. Spotting and breakthrough bleeding are more likely to occur when women use lower dose pills. These symptoms tend to diminish dramatically over the first few months of pill use. Some women stop using pills because of these problems, but counseling users about expected menstrual changes can decrease the likelihood that they will stop using the pill. However, if a woman does not accept the pattern of bleeding associated with one type of pill, she may want to try another type.

Androgenic effects. Low-dose combined pills tend to have a beneficial effect on acne and oily skin, because they all suppress a woman's production of testosterone.[14,18] The new progestins (desogestrel, norg-

estimate, and gestodene) appear to further reduce problems such as hirsutism, oily skin, sebaceous cysts, pilonidal cysts, and weight gain. These pills are associated with higher sex hormone binding globulin levels and lower free testosterone levels. In some cases, however, the progestin component of OCs produces both androgenic and progestational effects:[9]

- Increased appetite and weight gain
- Depression, fatigue, or tiredness
- Acne or oily skin
- Increased breast size (alveolar tissue)
- Increased LDL cholesterol levels
- Decreased HDL cholesterol levels
- Diabetogenic effect
- Pruritus (itching)
- Decreased tolerance of starches and sugars (carbohydrates)

Lipid changes. To produce the most beneficial lipid profile, prescribe one of the new progestin pills containing desogestrel, norgestimate, or gestodene. Generally, these new progestins increase HDL cholesterol and decrease LDL cholesterol. When prescribing one of the norethindrone pills, choose one with 0.4 or 0.5 mg of norethindrone.

Other Considerations in Pill Choice

Higher dose estrogens. A woman should not be started on pills with more than 50 mcg of estrogen. However, there are clinical situations when a 50 mcg pill may be helpful:

- Occasional spotting or the absence of withdrawal bleeding cannot be managed on a pill with less than 50 mcg.
- Acne, dysfunctional uterine bleeding, ovarian cysts, and endometriosis have all been treated occasionally with OCs containing 50 mcg of estrogen. Dysfunctional bleeding has been treated by prescribing a variety of OCs in the following regimen: one tablet four times a day for 5 to 7 days. Ovarian cysts less than 6 cm in diameter in women of childbearing-

age have been treated with combined monophasic pills (pills that contain the same dose of hormones throughout the active cycle of pills).

- Low-estrogen symptoms of menopause rarely occur in a woman taking a 20, 30, or 35 mcg pill and may be eliminated by a 50 mcg pill.
- Pregnancy, despite the perfect use of a 30 to 35 mcg pill, may signal that the user is a candidate for a 50 mcg pill. A second approach, which may be preferable, is to decrease the number of pill-free days from 7 to 4 or 5 (21 active pills followed by only 4, 5, or 6 days of no OCs before beginning a new package of pills).
- Rifampin and Dilantin (phenytoin) both accelerate the breakdown of estrogens in OCs, and women on these medications should probably be started on a 50 mcg pill.

New progestins. The new progestin pills may be ideal for women who are beginning to use contraceptives. The new progestins have several potential advantages over pills previously available:

- Higher HDL cholesterol and lower LDL cholesterol levels. However, while this biochemical profile might be expected to be beneficial to women over time, no clinical studies to date demonstrate clinical advantages.
- Lower free testosterone levels and higher sex hormone binding globulin (SHBG) levels. SHBG is increased more by desogestrel pills than by levonorgestrel pills.
- Reduced amenorrhea. There appear to be no women who go 2 months without a withdrawal bleed. Most women who take other low-dose OCs are amenorrheic for several cycles and feel uncertain or uncomfortable about this degree of menstrual irregularity.

The disadvantages of the new progestin pills are as follows:

- They may increase the confusion over the many pill options.
- Lowering of free testosterone may have negative effects although preliminary evidence has not shown this to be true.

- The price of some of the new progestins may be higher than the price of other pills.
- They present a greater risk of deep vein thrombosis.

Multinational studies have shown that soon after beginning pills with gestodene or desogestrel, women have a twofold to fourfold increase in nonfatal thromboembolic disease that is not affected by smoking, age, or history of hypertension.[34,35]

Extensive in vivo and in vitro tests show norgestimate to have less androgenic effect than previously available progestins. In combination with EE norgestimate raises SHBG, reduces free testosterone, and elevates HDL cholesterol. It maintains a more favorable LDL:HDL ratio over a 2-year period than do the progestins levonorgestrel and norethindrone. Norgestimate does not adversely affect clinical coagulation profiles.

Desogestrel is the progestin most extensively used in pills prescribed in Europe, where a number of progestins have been competing for the pill market for over a decade. Its metabolic effects are similar to those described for norgestimate pills. Desogestrel is marketed as a monophasic pill in much of Africa and Europe as Marvelon and elsewhere as Desogen and OrthoCept.

Gestodene, used extensively in OCs in Europe, has many of the advantages of norgestimate and desogestrel.

Triphasic pills. Triphasic pills (pills that vary the dose of hormone taken in the early, middle, and end of the active cycle of pills) offer no particular advantages to clinicians. Indeed, they may complicate instructions for using pills. Of combined OCs containing levonorgestrel, the triphasics have the least amount of levonorgestrel.

Pill interactions. The lower the dose of estrogen or progestin provided to a woman as a contraceptive, the greater the chance that the effectiveness of a contraceptive pill is reduced.

- A second medication may induce liver enzymes that cause breakdown of an estrogen or progestin (microsomal liver enzyme induction). Rifampin has potent enzyme-inducing

effects; the antifungal drug griseofulvin may have similar but less powerful enzyme-inducing properties. The anticonvulsants most likely to have this effect are phenobarbital, phenytoin, carbamazepine, primidone, and ethosuximide (the anticonvulsant sodium valproate does not have this effect).[5] Pregnancy may occur more often in low-dose OC users on anticonvulsants.[4,8] Women receiving long-term phenobarbital therapy should begin with an OC containing 50 mcg of EE; if they have breakthrough bleeding, the dose should be increased even more.[4]

- A second medication may increase plasma SHBG levels, thereby decreasing the amount of biologically active free steroid.
- A second medication may decrease the amount of hormone initially absorbed or reabsorbed following passage through the liver. Antibiotics may decrease OC effectiveness by decreasing enterohepatic recirculation, increasing fecal or urinary excretion of steroids, or increasing liver degradation. However, despite anecdotal case reports of pregnancy occuring among users on antibiotics, no firm pharmacokinetic evidence exists linking antibiotic use to altered steroid blood levels.[5]
- Side effects of medication may cause nausea, diarrhea, or drowsiness or may cause a woman to fail to take OCs. Missing low-dose OCs may be more deleterious than missing higher dose pills.
- Spotting or breakthrough bleeding may cause a patient to skip several pills or discontinue the method altogether, both of which could lead to unplanned pregnancy.

Using OCs may affect the pharmacokinetics of other drugs a woman is taking. For example, OCs decrease clearance of benzodiazepines such as diazepine, nitrazepine, chlordiazepoxide, and alprazolam, and lower doses of these medications may be indicated for women on pills.[1,5] Use of OCs may increase the effects of anti-inflammatory corticosteroids by decreasing their clearance and increasing their half-life. Lower doses of steroids may be indicated in OC users.[5]

Clearance of bronchodilating drugs such as theophylline and aminophylline, as well as the closely related drug caffeine, may be reduced by 30% to 40% in pill users.[5] Questions remain as to the effects of OCs on analgesics, antihypertensive agents, and cyclosporin.[5]

Managing of Problems and Follow-up (problems follow in alphabetical order)

Acne or oily skin

Combined pills tend to decrease acne. The estrogen in combined OCs has a beneficial effect on acne, as does the lowering of the circulating level of free testosterone caused by all available pills. Only rarely does a woman's acne become worse using a combined pill. If this happens, try a pill with a different formulation.

Amenorrhea and very scanty bleeding

The cyclic buildup of the uterine lining is almost always less in women using pills than in women experiencing natural cycles. The amount of vaginal bleeding in the 7 pill-free days may be scant or absent. Women should be told in advance to anticipate a decrease in bleeding.

Determine whether the patient is pregnant. Check for uterine enlargement, softening of the cervix, and other signs of pregnancy. The most important differential diagnosis to consider in a pill user who has missed periods includes pregnancy (intrauterine or ectopic) and inadequate buildup of the endometrium due to low-dose pills.

Breakthrough bleeding and spotting between periods

Spotting and breakthrough bleeding are more likely to occur among women taking low-dose pills than among women using higher dose pills. However, even women using very low-dose pills have more regular cycles than women using no birth control pills. Inform clients that spotting is quite common in the first few months of taking pills, that it tends to improve over time, and that you may be able to change

her pill to a different formulation should spotting or breakthrough bleeding continue and be bothersome to her. *Chlamydia infection can cause spotting or breakthrough bleeding.* Consider chlamydia infection in the differential diagnoses if the woman has had a recent change in sexual partners.

Breastfeeding problems

Combined pills appear to decrease both the volume and protein content of breast milk in some breastfeeding women. Small amounts of the hormones in pills are present in the breast milk. Some studies have shown normal weight gain in infants whose mothers were using OCs while breastfeeding. The hormones that pass through breast milk do not appear to harm the breastfed infant, but breastfeeding women should use an alternative to combined OCs.[14,26] Progestin-only contraceptives are a better choice than combined OCs. If a woman decides to use combined OCs postpartum, she should not use them until after she has established a good flow of breast milk.

Breast fullness or tenderness (mastalgia)

Lowering the amount of estrogen provided in each pill tends to reduce breast tenderness. The differential diagnosis of breast fullness or tenderness includes actual growth of breast tissue; cyclic edema due to either the estrogen or the progestin; early pregnancy; and tenderness from benign breast disease, a fibroadenoma, or breast cancer. After ruling out the possibility of pregnancy and breast cancer, switch the patient to the lowest estrogen pill available or to a progestin-only pill. Symptoms may improve if the woman avoids vigorous physical exercise (which shakes breast tissue) during times of most discomfort.

Chloasma

Pills may cause chloasma (mask of pregnancy), particularly if a woman is exposed to a lot of sunlight. Darkening of skin pigment usually occurs on the upper lip, under the eyes, and on the forehead. The increased pigmentation may be slow to fade when pills are discontin-

ued. Other skin conditions that may occur in pill users include telangiectasia, neurodermatitis, erythema multiforme, erythema nodosum, eczema, photosensitivity, and loss of hair.

Depression and other mood changes

If severe depression begins after a woman starts taking pills, strongly consider advising her to discontinue the pills to see whether the depression goes away. She should use a different method of contraception that both she and her partner find acceptable. If depression is related in part to fear of becoming infected with HIV, encourage condom use. Lowering of the estrogen or the progestin content (or both) may benefit depression associated with pill use. Because OCs can deplete the body of some vitamins, use of supplemental vitamins (especially containing Vitamin B) may help improve depression.

Eye problems such as blurred vision or loss of vision

Vision changes may accompany headaches and a transient decrease in blood flow (ischemia). If a patient has experienced transient, total, or partial loss of vision, strongly consider discontinuing pills immediately to see whether the symptoms go away. If visual symptoms accompany migraine headaches that have become worse, discontinue pills immediately.

Headaches

Headaches may be mild, severe, recurrent, or persistent. Women may note an increase or decrease in the severity of migraine headaches. Pill-induced headaches are sometimes associated with blurred vision, loss of vision, nausea, vomiting, or weakness in an extremity. Because severe headaches may be an early warning of a stroke, they need to be taken seriously. Pay particular attention if symptoms are increasing. Definitely consider discontinuing pills if headaches have become worse. If the woman's headaches are clearly related to beginning oral contraceptive use, discontinue or change to a pill with lower estrogen or lower progestogen. Re-evaluate the woman's headaches after 1 or 2 cycles.

Decreased sex drive or libido

Although some women note a decrease in sex drive, many others find they enjoy intercourse more because they no longer fear pregnancy. If a woman does note an unwanted change in her interest in sex when she starts on a combined pill, consider giving a different pill.

Nausea

Although less of a problem for women on lower dose pills, nausea is most likely to occur during the first cycle or so of pills or during the first few pills of each new package. Vomiting is rare. Many women can control nausea by taking their pills with a meal (the dinner or evening meal may be best). Taking pills at bedtime has helped some women. When nausea occurs for the first time after months or years of taking pills, look for signs of early pregnancy. Nausea may also be caused by flu or another acute infection rather than the pill. Consider changing to a combined pill with less estrogen or to a progestin-only pill containing no estrogen. Inform the patient that if she vomits within 1 hour of taking a pill, she should take an extra pill from a separate pack to replace the pill she took just before vomiting.

Pregnancy

Although pills are very effective, they can fail. Inform the patient that there is no apparent increased risk of birth defects if pills have been taken during pregnancy. Discontinue pills if a diagnosis of pregnancy is made. Refer the patient for prenatal care if she wishes to continue pregnancy or for a legal abortion if she wishes to terminate the pregnancy.

Weight change

Pill use may be associated with an increase or decrease in weight. Weight change is usually minimal and not related to pill use. History should include questions about change in appetite since starting pills, cyclicity of weight gain, and symptoms of early pregnancy. There is no evidence that overweight women require a higher dose pill for the OCs to be effective. Obese women should start on a low-dose com-

bined pill. The protective effect of pills against endometrial cancer may be particularly desirable in overweight women, whose risk of endometrial cancer is increased.

INSTRUCTIONS FOR USING COMBINED PILLS

Birth control pills do not protect you from HIV or other sexually transmitted infections. If there is any risk of sexually transmitted infection, use a condom (male or female) every time you have sexual intercourse.

No matter what other methods of contraception a woman is using, if she is at any risk because her partner tests HIV positive or because she does not know his HIV status, she should be advised to use plastic or latex condoms with every sexual act. No other contraceptive method besides abstinence provides the same degree of protection.

The pill is a very effective method of birth control. It works primarily by stopping ovulation (release of an egg). In addition to preventing pregnancy, pills decrease the risk of ovarian cancer, cancer of the lining of the uterus, benign breast masses, and ovarian cysts. Pills decrease menstrual blood loss, menstrual cramps, and the chance of having an ectopic pregnancy—a pregnancy outside the uterus.

1. Swallow a pill at the same time every day—pills work best if you keep a steady level of hormones in your system.
2. **Choose a back-up method of contraception** (such as condoms or foam) to use with your first pack of pills because the pills may not fully protect you from pregnancy during this first cycle. A back-up method is probably not necessary if you start taking pills on the first day of bleeding (see instruction #3 below). Whether or not you use a back-up contraceptive your first month on pills, keep a back-up method handy all the time and learn to use it correctly in case you do any of the following:

- Run out of pills
- Forget to swallow your pill
- Experience a pill warning signal and discontinue pill use
- Want protection from sexually transmitted infections, most notably the virus which causes AIDS (Condoms provide the best protection.)
- Have repeated episodes of breakthrough bleeding

3. You may start taking your pills according to one of several different schedules:
   - First day of menstrual bleeding
   - First Sunday after your period begins
   - Today if you are certain you are not pregnant
4. Take one pill a day until you finish the pack. Then follow these directions:
   - If you are using a 28-day pack, begin a new pack immediately. Do not skip days between packages.
   - If you are using a 21-day pack, stop taking pills for 1 week and then start your new pack.
5. Take your pill at the same time you do something else at about the same time every day, like going to bed, eating a meal, or brushing your teeth. A regular routine may make it easier to remember your pills.
6. Check your pack of birth control pills each morning to make sure you took your pill the day before.
7. If you have bleeding between periods, try to take your pills at the same time every day. If you have spotting (light bleeding between periods) for several cycles, you may want to call your clinician to see whether you need a different pill. Spotting is more likely to occur with the current low-dose birth control pills. Because spotting is generally not a sign of a serious problem in young women, your clinician may take a "watch-and-wait" approach if you are not concerned or inconvenienced. If you suddenly begin to have

bleeding between periods and you have not previously had this problem or have not missed pills or taken pills late, consider having your clinician check you for an infection. Spotting between periods may also signal decreased pill effectiveness. Some clinicians recommend a back-up contraceptive for women who have spotting when they use pills, especially if the woman is taking a medication that may lower pill effectiveness.

8. Some drugs decrease the effectiveness of birth control pills. Be sure to tell your clinician whether you are using any of these drugs: rifampin, Dilantin (phenytoin), carbamazepine, ampicillin, or tetracycline. Taking vitamin C may actually raise the level of estrogen in your blood and may lead to increased spotting.[14]

9. **If you forget to take your birth control pill or if you start your pack late, use your back-up method of birth control for 7 days**, and follow the instructions below:

   - If you miss 1 pill, take that pill as soon as you remember it. Take your next pill at the regular time.
   - If you miss 2 pills in a row, take 2 pills as soon as you remember and take 2 pills the next day. Then return to your regular schedule.

If you miss 3 pills in a row, ask yourself if pills are a good method of birth control for you. You might be better off choosing a different method.

   - If you miss 3 pills in a row, you will probably begin your period. Whether or not you are menstruating, throw away the rest of your pack of pills and begin a new pill pack as you did when you first started using pills.

     For example, if you are a "Sunday starter," begin your next pack on Sunday. If you started on any other day, simply start your next pack immediately.
   - If the only pills you miss are from the **fourth week** of a 28 day pill pack, simply throw away the missed pills. Then continue

taking pills from your current package of pills on schedule. The pills in this fourth week do not contain hormones, so missing these pills does not increase your risk for pregnancy at all. You do not need to use your back-up method of birth control.

10. If you have diarrhea or vomiting, use your back-up method of birth control until your next period. Start using a back-up method on your first day of diarrhea or vomiting. Many women experience nausea the first month they take pills. This tends to go away in the next cycle or so. If nausea continues, switching to the lowest dose pill may help. Ask your clinician.
11. Women taking pills note that periods tend to be short and scanty, and you may see no fresh blood at all**. A drop of blood or a brown smudge on your tampon or on your underwear is considered a period when you are on the pill.**
12. If you do not have your menstrual period when expected while taking birth control pills, you may want to consult your clinician.
    - *If you have not missed any pills and you miss 1 period* without any other signs of pregnancy, it is unlikely you are pregnant. Many women who take birth control pills occasionally miss 1 period. Call the clinic if you are worried. You are fairly safe and can start a new package of pills at the regularly scheduled time.
    - *If you forget 1 or more pills and miss a period*, stop taking pills and use another method of birth control. Contact your clinic for a pelvic examination or a sensitive pregnancy test.
    - *If you miss 2 periods in a row*, come to the clinic for a pregnancy test immediately, even if you took your pills every day. Bring a sample of your first-morning urine in a clean container.
13. If you do become pregnant while taking birth control pills, you must decide whether you want to have a child at this time. The risk of having a baby with birth defects does not seem to be increased in pill users who become pregnant.
14. **If you decide you want to become pregnant,** stop taking pills. You may wish to use another method of birth control until you

have two or three normal menstrual periods off the pill so that when you become pregnant, your date of delivery will be accurate.

15. If you see a clinician for any reason or are hospitalized, be sure to mention that you are taking birth control pills.
16. **If you have problems with any mood changes**—depression, irritability, change in sex drive—see your clinician. Switching pill brands may help if your mood changes are related to the pill. Your clinician can help tell you what to do.
17. Learn the pill warning signals. Any one of these five symptoms may mean that you are in serious trouble. Note that the first letter of each symptom spells out the word "ACHES."

Early Pill Warning Signs

Caution

- **A** ■ Abdominal pain (severe)
- **C** ■ Chest pain (severe), cough, or shortness of breath
- **H** ■ Headache (severe), dizziness, weakness, or numbness
- **E** ■ Eye problems (vision loss or blurring) or speech problems
- **S** ■ Severe leg pain (calf or thigh)

Do not ignore these problems or wait to see whether they disappear. Contact your clinician immediately to tell him or her about your problem. Birth control pills are safer when you get help as soon as problems arise.

If you smoke, stop smoking. If you can't, it is all the more important that you watch for the pill warning signals. If you smoke you should probably stop taking pills at age 35.

Three of the Most Commonly Asked Questions About Pills

Do oral contraceptive pills cause cancer?

Studies have *not* shown that the pill causes cancer; in fact, the pill protects against cancer of the ovaries and lining of the uterus. Although the final word is still not in, we have learned more and more as we have gained experience with pills.[7] By age 55, a woman is less likely to be diagnosed with cancer if she used OCs.

Good News

Pills make women less likely to develop three types of cancer:

- Ovarian cancer
- Endometrial cancer
- Choriocarcinoma (also called trophoblastic disease or molar pregnancies)

Pills also make women less likely to develop several benign tumors or masses:

- Benign breast masses (fibroadenomas and cysts)
- Fibroids (leiomyomata)
- Ovarian cysts

Bad News

There is one rare tumor of the liver that is more likely to develop in women using pills. However, this tumor is not a cancer.

Neither Harmful Nor Beneficial Effect

Pills probably have no effect on a woman's likelihood of developing a malignant melanoma; kidney, colon, or gall bladder cancer; or pituitary tumors.[15,20]

Still Not Sure

- **Breast cancer**. By age 55, women who did not use pills are just as likely to be diagnosed with breast cancer as women who used pills.[15,33] However, there is probably a definable group of young women who have used pills who are at increased risk for having breast cancer diagnosed before the age of 35.
- **Cervical cancer**. Some studies have shown an increased risk for cervical cancer among pill users, while others have not. Women taking pills should have a Pap smear regularly.
- **Cancer of the liver**. Some studies have shown an increased risk for liver cancer,[10,17] while others have not.[12,28,36]

Does the pill cause deformed babies and multiple births?

No. The number of babies born deformed or the number of multiple births is no different among women who have used pills and those who have not.[3]

When a woman stops using the pill, will she have difficulty getting pregnant again?

After a woman stops taking the pill, her ovaries begin to work just as they did before she took the pill. On average, it takes 2 to 3 months after stopping the pill to become fertile. The small number of women who have trouble getting pregnant after taking the pill would have had trouble even if they had never taken the pill.[3]

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